

to the position and distance of the Earth from the Sun. The mean motions of *Jupiter's* Satellites is also swifter in his descent from his Aphelium to his Perihelium, than in his ascent in the other half of his Orb: But this inequality has no respect to the position of the Earth, and in the three interior Satellites is insensible, as I find by computation from the Theory of their gravity.

P R O P. XII.

Every ray of Light in its passage through any refracting surface is put into a certain transient constitution or state, which in the progress of the ray returns at equal intervals, and disposes the ray at every return to be easily transmitted through the next refracting surface, and between the returns to be easily reflected by it.

This is manifest by the 5th, 9th, 12th and 15th Observations. For by those Observations it appears, that one and the same sort of rays at equal Angles of incidence on any thin transparent plate, is alternately reflected and transmitted for many successions accordingly, as the thickness of the plate increases in arithmetical progression of the numbers 0, 1, 2, 3, 4, 5, 6, 7, 8, &c. so that if the first reflexion (that which makes the first or innermost of the Rings of Colours there described) be made at the thickness 1, the rays shall be transmitted at the thicknesses 0, 2, 4, 6, 8, 10, 12, &c. and thereby make the central Spot and Rings of Light, which appear by transmission, and be reflected at the thicknesses 1, 3, 5, 7, 9, 11, &c. and thereby make the Rings which appear

appear by reflexion. And this alternate reflexion and transmission, as I gather by the 24th Observation, continues for above an hundred vicissitudes, and by the the Observations in the next part of this Book, for many thousands, being propagated from one surface of a Glass-plate to the other, though the thickness of the plate be a quarter of an Inch or above: So that this alternation seems to be propagated from every refracting surface to all distances without end or limitation.

This alternate reflexion and refraction depends on both the surfaces of every thin plate, because it depends on their distance. By the 21th Observation, if either surface of a thin plate of Muscovy-Glass be wetted, the Colours caused by the alternate reflexion and refraction grow faint, and therefore it depends on them both.

It is therefore performed at the second surface, for if it were performed at the first, before the rays arrive at the second, it would not depend on the second.

It is also influenced by some action or disposition, propagated from the first to the second, because otherwise at the second it would not depend on the first. And this action or disposition, in its propagation, intermits and returns by equal intervals, because in all its progress it inclines the ray at one distance from the first surface to be reflected by the second, at another to be transmitted by it, and that by equal intervals for innumerable vicissitudes. And because the ray is disposed to reflexion at the distances 1, 3, 5, 7, 9, &c. and to transmission at the distances 0, 2, 4, 6, 8, 10, &c. (for its transmission through the first surface, is at the distance